

BRACED AGAINST
LATERAL TRANS.

$$M_r = B_1 M_{nt} + B_2 M_{et}$$

$$P_r = P_{nt} + B_2 P_{et}$$

$$C_m = 0.6 - 0.4 \left(\frac{M_1}{M_2} \right) = 0.6 - 0.4 (1) = 0.27 \approx 0$$

$$B_1 = \frac{C_m}{1 - \alpha P_r / P_{e1}}$$

$$B_1 = \frac{1.0}{1 - 200 / 302} = 1.07$$

$$P_{e1} = \frac{\pi^2 EI}{(K_1 L)^2}$$

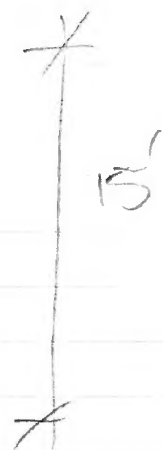
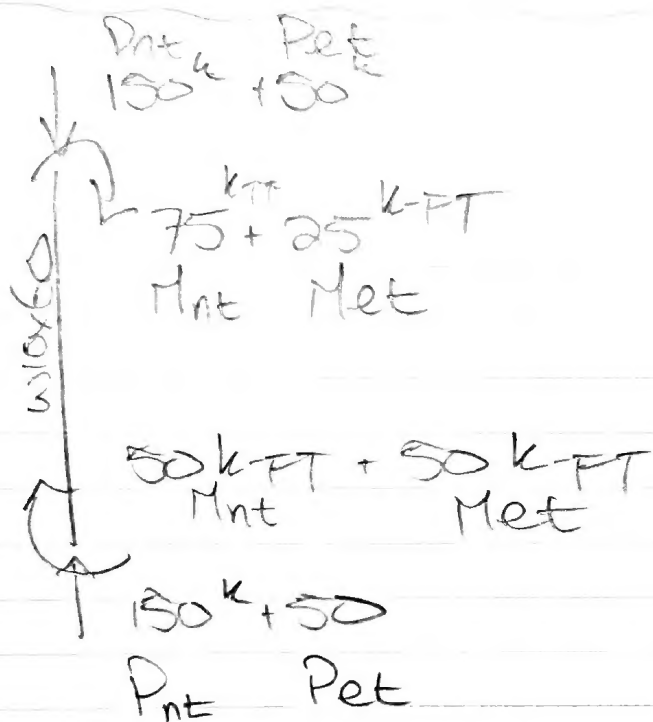
$$= \frac{\pi^2 (29,000) (841)}{(1.0 \times 15 \times 12)^2} = 302^2$$

$$P_r = 200^k$$

$$M_r = 1.07 \times 100^k \text{ PT} = 107 \text{ k-PT}$$

$$pP_r = (1.8 \times 10^{-3}) 200 = 0.36 > 0.2$$

$$\begin{aligned} pP_r + b \times M_r &= 0.36 + (3.46 \times 10^{-3})(107) \\ &= 0.73 \leq 1.0 \Rightarrow \text{MEMBER OK.} \end{aligned}$$



HOT
BRACED.

$$P_{story} = 2000^k$$

EVERY COL IS MF.
 $H = 100^k$

$$M_r = B_1 M_{nt} + B_2 M_{et}$$

$$P_r = P_{nt} + B_2 P_{et}$$

$$P_{\text{story}} = R_M \frac{HL}{\Delta H}$$

$$R_M = \frac{1 - 0.15(1.0)}{1 - 0.15(P_{\text{me}}/P_{\text{story}})} = 0.85$$

$$\Delta H = 0.01 \times 15' = 1.8''$$

$$P_{\text{story}} = 0.85 \times \frac{100^k \times (15 \times 12)}{1.8''} = 8500^k$$

$$B_2 = \frac{1}{1 - \frac{2P_{\text{story}}}{P_{\text{story}}}} = \frac{1}{1 - \frac{(1.0)(2000)}{8500}} = 1.31$$

$$P_r = 100^k + (1.31)(50^k) = \underline{216^k}$$

$$B_1 = \frac{C_m}{1 - 2P_r/P_{e1}}$$

$$P_{e1} = 302^k \text{ (FROM PREVIOUS)}$$

$$C_m = 0.6 - 0.4(50/75) = 0.33 > 1.0$$

$$B_1 = \frac{1.0}{1 - 1.0 \times 216^k / 302} = 1.08$$

$$M_r = 1.08 \times 50 + 1.31 \times 50 = \underline{120 \text{ k-ft}}$$

$$pP_r + b_x M_r \leq 1.0$$

$$(1.8 \times 10^{-3})(216) + (3.46 \times 10^{-3})(120) = 0.8 \text{ ok} \checkmark$$